The Market for Agency Securities

In the last twenty-five years the market for agency securities has registered substantial growth—from about $2 billion in the early fifties to over $100 billion today. The issuers of these securities are a group of institutions created under Federal law to serve explicit public purposes. Some are a part of the Federal Government and are known as Federal agencies, while others are privately owned and have come to be known as Federally sponsored agencies. Together their securities now form one of the largest financial markets in the United States, with total outstanding debt amounting to about one fifth the size of United States Treasury securities and one third that of corporate bonds. As a result, there is now active secondary trading of agency securities, allowing investors to buy and sell these issues more cheaply and efficiently than in earlier years.

The market is dominated by the Federally sponsored agencies, institutions established by the Government but now privately owned organizations with only limited access to Government funds. The remainder of the market consists of the Federal agencies, which are still partially or wholly owned by the Federal Government. In recent years, the agencies in the latter group have not issued new debt but instead have been financed indirectly by the United States Treasury.

This article looks at the pattern of agency market growth over the past quarter of a century and investors' attitudes toward the securities issued by the Federally sponsored and Federal agencies. It also explores some of the issues surrounding the activities of the agencies. In the main, it is the agencies serving the housing sector that have received most attention from both academic economists and policymakers. Do the agencies influence residential construction activity and, if so, does their influence tend to stabilize the economy? How is agency activity related to the regulation of interest rates on time and savings accounts, and is such regulation desirable? And, in regard to the Federal National Mortgage Association (FNMA), why do the critics seek tighter regulation?

What is the agency market?

Notwithstanding the legal distinctions among the agencies such as the extent and degree of Federal Government backing and control, their securities are essentially similar and those of comparable maturities trade at about the same yields. Agency securities, however, are regarded as distinct from those issued by the United States Treasury, state and local governments, and ordinary private corporations.

The "agency market" as commonly defined covers about $103 billion of debt, consisting mainly of taxable bonds and discount notes.[1] Most securities included here are general obligations of the agency that issues them, *i.e.*, there is no particular asset pledged to them.

Agency securities run the gamut as far as original maturities are concerned but tend to be concentrated in the intermediate-term area of from one to ten years. For most intermediate- and long-term agency securities, denominations of $10,000 and in some cases of $1,000 are available. The short-term discount notes and mortgage-backed securities, however, often come only in larger denominations of $50,000 or more. Agency issues may be bought from

[1] The definition used in this article includes those agency issues that are large enough and of a suitable nature to permit a significant amount of secondary market trading in them.

Borrowers in the Agency Market: Acronyms and Nicknames

Federally sponsored agencies

Banks for Cooperatives	BCs or COOPs
Federal Farm Credit Banks*	FFCBs
Federal Home Loan Banks	FHLBs
Federal Home Loan Mortgage Corporation	FHLMC or Freddie Mac
Federal Intermediate Credit Banks	FICBs
Federal Land Banks	FLBs
Federal National Mortgage Association	FNMA or Fannie Mae

Federal agencies

Export-Import Bank	EXIM
Farmers Home Administration	FmHA
General Services Administration	GSA
Government National Mortgage Association	GNMA or Ginnie Mae
Postal Service	PS
Tennessee Valley Authority	TVA

Other

Washington Metropolitan Area Transit Authority	WMATA

* Federal Farm Credit Bank consolidated debt is the name given to the joint obligations of the three sponsored farm agencies BCs, FICBs, and FLBs

or sold to a number of securities dealers who also handle United States Government obligations. These dealers trade in an over-the-counter telephone market for agency securities, just as they do in the case of Federal Government securities. The interest earned on agency securities is subject to the Federal income tax, and many are also subject to state and local income taxes.[2] In the former respect, they differ from state and local government securities that are exempt from the Federal income tax while, in the latter respect, they are different from United States Treasury securities which are exempt from state or local taxation.

As noted earlier, a clear-cut distinction can be made within the agency market between two types of borrowers: the Federally sponsored agencies, which are now wholly privately owned, and the Federal agencies, which are owned by the Government.[3] The box on this page lists these agencies and the acronyms by which they are known. Both types of agencies were originally created by the Federal Government and were initially funded to some extent by the United States Treasury.

The Federally sponsored agencies comprise the bulk of the agency market: $89 billion of outstanding debt in 1977. Treasury capital was repaid by the sponsored agencies when they became private, and they now obtain most of their funds by issuing securities to the public. The Treasury neither contributes financially to them nor guarantees their securities. However, the sponsored agencies do have emergency backstops at the Treasury which can be drawn on subject to Treasury approval (box on page 9).

Despite the lack of financial involvement, the Federal Government does maintain some degree of control over the sponsored agencies: through appointment of directors, setting of debt limits, and approval of terms, size, and timing of debt issues. FNMA, for example, is regulated by the Secretary of the Department of Housing and Urban Development (HUD) and five of its fifteen directors are appointed by the President. In addition, all three members of the FHLB Board, which supervises the FHLBs, are Presidential appointments as are most members of the Federal Farm Credit Board which provides policy guidance for the farm credit agencies.

With the exception of the Federal Home Loan Mortgage Corporation (FHLMC), which was created in 1970, the sponsored agencies have existed in one form or another for several decades. The Banks for Cooperatives (BCs), the FHLBs, and FNMA were all established during the 1930's, while the Federal Land Banks (FLBs) and the Federal Intermediate Credit Banks (FICBs) have an even longer history.[4] The sponsored agencies channel credit and technical support either to the agricultural or to the housing sector. The FLBs, FICBs, and BCs serve the farm sectors, whereas FNMA, the FHLBs, and FHLMC are associated with housing. In many respects these agencies act as financial intermediaries. Most of them lend to, or purchase assets such as mortgages from, other intermediaries which in turn provide funds to individuals and businesses. All the housing agencies and the FICBs operate through other financial intermediaries. For example, the FHLBs lend money to savings and loan institutions, which have the bulk of their portfolios in home mortgages. The FLBs and the BCs operate without intermediaries and lend the funds

[2] The major exceptions to state and local income taxation are the securities of the Federal Home Loan Banks (FHLBs) and the sponsored farm credit agencies

[3] In addition, Federally guaranteed bonds issued by the Washington Metropolitan Area Transit Authority (WMATA) are also part of the agency market

[4] A detailed description of the background and functions of each of the agencies and the securities issued by them is contained in Appendix B

Flow of Funds from Federally Sponsored Agencies

Agency	Method of transmission of funds	To whom transmitted	Sector of agency's concern
BCs	Make loans	Cooperatives made up primarily of farmers, ranchers, and commercial fishermen	Agriculture
FICBs	Make loans secured by notes and other assets	Production credit associations and financial institutions	Agriculture
FLBs	Make loans secured by real estate	Individual farmers, ranchers, rural residents, and farm-related businesses	Agriculture
FHLBs	Make advances (loans)	Savings and loan associations primarily	Housing
FHLMC	Buys mortgages	Savings and loan associations primarily but also other Federally insured depository institutions	Housing
FNMA	Buys mortgages	Mortgage bankers, commercial banks, savings and loan associations, and savings banks	Housing

Characteristics of the Federally Sponsored and Federal Agencies

Agency	Securities are obligations of the United States	Wholly private	Allowable debt to capital ratio or debt ceiling	Backstop funds available from the Treasury (billions of dollars)	Market debt as of December 31, 1977 (billions of dollars)
Federally sponsored agencies					
BCs or COOPs	No	Yes	20 1	0 1	4 4
FICBs	No	Yes	20 1	0 1	11 2
FLBs	No	Yes	20 1	less than 0 1	19 1
FHLB system*	No†	Yes	12 1	4 0	20 0
FNMA	No†	Yes	25 1	2 2	31 3
Federal agencies					
EXIM	Yes	No	—	6 0	2 7
FmHA	Yes	No	—	—	3 9
GSA	Yes	No	—	—	0 7
GNMA	Yes	No	—	—	3 7
PS	No	No	$10 billion	2 0	0 3
TVA	No	No	$15 billion	0 2	1 8

See box on page 8 for explanation of acronyms
* Includes FHLBs and FHLMC.
† Both FNMA and FHLMC have some mortgage-backed securities outstanding which are GNMA guaranteed

they have borrowed directly to the farmers and farm cooperatives whom they serve.

The sponsored agencies are generally able to finance their various activities without subsidy or loss. These agencies can usually borrow at interest rates below the average return from their portfolios. What enables them to do this? For one thing, despite the lack of an explicit guarantee on their securities, these agencies are subject to Government control far beyond that of ordinary private corporations, and the close Governmental involvement enhances investor confidence in their financial stability. Perhaps an even more important element is the liquidity of agency issues relative to agency assets. There may also be another element: these agencies act as poolers of risk and may thereby have a lower default rate than a smaller localized financial institution.

The direct Federal agencies, which have always comprised a smaller part of the market, differ from the Federally sponsored agencies in a number of ways. They are a part of the Federal Government, and most of their securities are for credit purposes obligations of the United States. Some of the activity of the Federal agencies is included in the Federal budget, and since 1974 most of their borrowing has been conducted indirectly through the United States Treasury rather than in the agency market. The Federal agencies borrow from the Federal Financing Bank (FFB) which in turn borrows from the Treasury.

The FFB was created by a December 1973 act of the Congress, which established this new umbrella agency within the Treasury "to assure coordination of [borrowing] programs with the overall economic and fiscal policies of the Government, to reduce the costs of Federal and Federally assisted borrowings from the public, and to assure that such borrowings are financed in a manner least disruptive of the private financial markets and institutions". Soon after its creation, the FFB made a short-term offering of its own. Since then, however, the FFB has financed its operations solely through borrowing from the Treasury. This change took place because it appeared that its borrowing cost from the public would be more expensive than the Treasury's borrowing cost As a consequence, the Treasury must borrow more than the amount of its deficit to make funds available to the FFB for conducting its operations. This added borrowing by the Treasury presumably continues to be at a lower cost than the FFB would have incurred in the market However, it may well be that, had the FFB continued borrowing in the market, over time its financing costs would have come closer to the Treasury's.

Since the establishment of the FFB, the public debt of the Federal agencies has been limited to the obligations issued prior to the creation of the FFB and has declined as these outstanding issues have matured. Eventually, unless current procedures are changed, the agency market will consist only of the obligations of the Federally sponsored agencies

Growth of agency obligations

The agency market has grown rapidly since the early fifties. From a level of just over $2 billion in 1952, the volume of agency debt reached $102.5 billion by year-end 1977. This fiftyfold increase amounted to a compound growth rate of 17 percent per year. The outstanding debt for each agency is shown for selected years in Table 1. The growth of agency debt was particularly rapid in the latter half of the fifties and again in the latter half of the sixties. Since 1974 there has been a marked slowdown as is evident from Chart 1 and Table 2.

Looking at the individual agencies, it is FNMA which has shown the most dramatic growth. FNMA was divided into two parts in 1968: a privately owned sponsored agency which retained both the secondary mortgage market function and the name FNMA and a new Federal agency called the Government National Mortgage Association. GNMA remained a part of HUD and assumed that part of FNMA activities that had been concerned with Federally assisted housing programs. Most of FNMA's growth occurred after it became private in 1968. Over the interval since then, FNMA's outstanding market debt has almost quintupled and at year-end 1977 was $31 billion. It is now the third largest debtor in the nation, exceeded only by the United States Government and the American Telephone & Telegraph Company. FNMA's assets consist mainly of mortgages which it buys in the secondary market from primary mortgage lenders

A closer look at the annual growth rates of agency debt reveals a wide variation from year to year, with some years showing substantial increases and others showing outright declines. What influences these patterns? The agencies generally respond to the credit demand of their constituents. In the housing sector, it is the demand for mortgages relative to the supply of funds from depositors that largely determines the need for the thrift institutions to borrow or sell mortgages. Two major factors have an effect on this balance: overall economic activity, which usually influences the demand for mortgages, and the level of interest rates, which affects deposit inflows and outflows as well as mortgage demand. Under existing regulations, there are ceilings on the interest rates that thrift institutions and commercial banks may pay on various categories of deposits. In addition, since mort-

Table 1

Agency Market Debt by Issuer

In billions of dollars

Issuer	Year-end 1961	Year-end 1966	Year-end 1971	Year-end 1976	Year-end 1977
Federally sponsored agencies					
BCs	0.4	1.1	1.8	4.3	4.4
FFCBs	—	—	—	0.7	2.5
FHLBs	1.6	6.9	7.1	16.8	18.3
FHLMC	—	—	0.6	1.7	1.7
FICBs	1.6	2.8	5.5	10.5	11.2
FLBs	2.4	4.4	7.2	17.1	19.1
FNMA	2.5	3.8	17.7	30.0	31.3
Federal agencies					
EXIM	—	1.4	1.4	3.2*	2.7*
FmHA	—	—	1.7	5.4	3.9
GSA	—	—	—	0.7	0.7
GNMA	—	2.0†	5.9	4.1	3.7
PS	—	—	—	0.3	0.3
TVA	0.1	0.3	1.6	1.8	1.8
Other					
WMATA	—	—	—	0.8	0.8
Total	8.6	22.7	50.7	97.5	102.5

Totals may not add because of rounding of components

See box on page 8 for explanation of acronyms of agencies

* Includes participation certificates reclassified as debt in October 1976

† Participation certificates transferred from FNMA after the creation of GNMA

Sources United States *Treasury Bulletin*, the *Semi-Annual Report* of the Federal National Mortgage Association, and telephone conversations with several agencies

Table 2

Annual Growth of Agency Market Debt

In percent

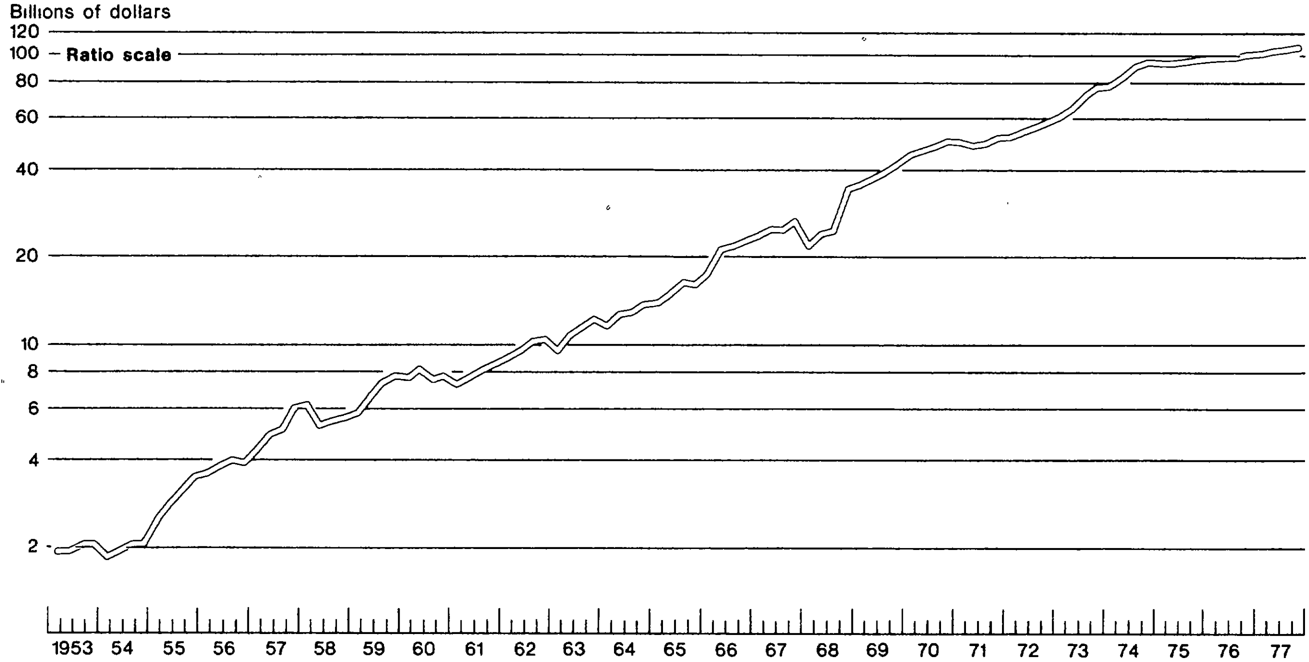
Largest agencies	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
BCs	34.9	16.7	12.8	5.6	18.3	2.8	8.1	37.4	33.2	1.8	18.5	2.4
FHLBs	31.4	−40.8	15.8	79.2	21.0	−29.9	−2.4	120.4	42.5	−13.7	−11.1	9.1
FICBs	24.7	15.4	10.6	16.2	17.5	13.9	5.4	18.9	23.9	7.7	13.4	6.4
FLBs	18.2	11.8	12.8	10.0	7.5	10.3	13.3	23.0	25.8	18.5	14.2	11.6
FNMA	101.7	29.4	29.6	64.9	44.7	16.4	7.5	18.0	23.0	6.5	2.1	4.4
Growth of all Federally sponsored and Federal agency debt	41.9	17.0	28.6	22.2	19.3	3.0	12.7	31.4	22.9	2.3	3.3	5.2

See box on page 8 for explanation of acronyms of agencies.

Sources United States *Treasury Bulletin*, the *Semi-Annual Report* of the Federal National Mortgage Association, and telephone conversations with several agencies

Chart I

Market Debt of Federal and Federally Sponsored Agencies



Sources United States Treasury Bulletin, the Semi-Annual Report of the Federal National Mortgage Association, and telephone conversations with several of the agencies

gages are long-term loans, the average return on thrift portfolios adjusts very slowly at times of rising interest rates. As a result of these factors, when market rates are high, rates paid on deposits become less competitive with those on market instruments and some depositors shift funds to these higher yielding securities. Moreover, new savings also tend to go into higher yielding market instruments. When market interest rates recede, funds tend to flow into the thrift institutions and banks This pattern of inflows and outflows, in turn, influences the need to borrow from the FHLBs and the supply of mortgages offered to FNMA and the FHLMC. It is these housing agencies that account for most of the variation in total agency debt. In the period from 1952 to 1968, economic activity appears to have been the dominant influence, as agency market debt generally moved in line with business activity, increasing during periods of economic expansion and declining during recessions. In the most recent recessions of 1969-70 and 1973-75, however, agency debt continued to grow throughout the downturn. This reflected in part the fact that interest rates remained high relative to the ceilings on deposits well into those recessions.

The agricultural agencies' debt, on the other hand, does not display a pronounced cyclical pattern. The demand for agricultural credit stems from the need to finance farm equipment, buildings, land improvements, and seasonal production expenses For the most part, these borrowing needs reflect variations in the world supply and demand for farm products rather than domestic business activity.

Although not actually a part of the agency market, there is another type of debt issue involving a Federal agency which should be mentioned both because of its size and rapidly growing importance and because some investors view these securities as substitutes for agency issues These are the mortgage-backed pass-through securities which regularly return to investors a portion of principal as well as interest, with payments made more frequently than the semi-annual interest return on most agency issues. By far the largest volume of these are the GNMA-guaranteed packages of Federal Housing Administration (FHA)-insured or Veterans Administration (VA)-guaranteed mortgages assembled by private issuers such as mortgage banking companies. Close to $52 billion of these securities was sold from their introduction in 1970 to the end of 1977 In addition, some $8 billion of FHLMC mortgage-backed participation certificates was sold between their introduction in 1971 and the end of 1977 Both the FHLMC certificates and the GNMA-guaranteed pass-throughs are considered real estate investments for certain tax purposes.[5] While they are quite similar to mortgages in terms of their monthly repayment of principal and interest and their treatment for tax purposes, trading in them is usually conducted through securities dealers.

Who owns agency securities?

Agency securities are held by a wide variety of financial and nonfinancial institutions and by individuals. According to the Treasury's survey of ownership, the major holders at the end of 1977 were commercial banks with about 20 percent, United States Government accounts and Federal Reserve Banks with 10 percent, and "all other investors" with about 50 percent (Table 3). This last group, a residual category, is composed of individuals, nonprofit organizations, foreign investors, and various businesses which do not report in the survey.

Over the 1961-77 period, the most dramatic changes occurred in the holdings of the Government accounts and Federal Reserve Banks—their share went from less than ½ percent in 1961 to 10 percent in 1977—and in the holdings of nonfinancial corporations, whose share declined from 11 3 percent to 1.5 percent. During this period, corporations increased their holdings of short-term liquid assets much more rapidly than their holdings of longer term securities, such as Government and agency issues. Other groups continued to hold approximately the same share of agency debt in 1977 as they did in 1961 Of course, given the huge increase in the dollar volume of outstanding debt, all the investor groups registered absolute gains in their holdings of agency obligations.

The survey data suggest that there may be changes in the distribution of holdings as conditions in financial markets tighten and ease. For example, at times of high interest rates commercial banks appear to reduce their share of agency securities This is consistent with the usual finding that banks reduce their demand for securities and make more loans as credit demands strengthen However, the cyclical variation in bank holdings of agency issues is much more moderate than in their holdings of Government securities Offsetting the reductions in the commercial bank share at such times is an increase in the share of the all other investor group.

Current marketing arrangements

The Federally sponsored and Federal agencies have used various techniques to market their new debt in recent years. The main technique entails the use of a fiscal agent who markets the securities through a selling group of dealers and commercial banks This is different from the technique used by the typical corporation and from that used by the Treasury. Most corporations market through syndicates of investment banking firms who underwrite the securities,[6] while the Treasury typically conducts auctions through the Federal Reserve Banks[7] The agencies, in issuing discount notes which are of very short maturity, typically rely on a few dealers who continually make a market in that agency's issues.

Under the selling group technique, the agency employs a fiscal agent who maintains close contact with the financial community. Based on market conditions and subject to approval by the agency, the fiscal agent determines the size, price, maturity, and offering date of a new issue and engages a group of securities dealers to sell the issue to investors. (Either by law or by custom the agencies also clear new issues with the Treasury) The members of the selling group are apportioned a share of the issue and receive a commission for distributing the securities.

On occasion, some agencies have used an underwriting syndicate. In this case, a group of dealers purchases the entire issue from the agency and assumes the risk of reselling it to investors. Its gain or loss on the undertaking is the difference between the purchase price it pays to the agency and the average price at which it can sell the issue to investors

Individual new issues of all the agencies vary widely in size but have generally ranged between $¼ billion and $1 billion over the past two years By comparison, the typical Treasury issue is $2½-3½ billion This difference in size of issue explains some of the difference in the liquidity of Treasury issues and agency issues, large issues are usually more liquid since they permit more trading activity.

Most of the agencies offer new issues at intervals of from one to three months. In the last two calendar years, FNMA averaged eight offerings a year while the FHLBs and FLBs issued bonds once every three

[5] Certain institutions qualify for more favorable Federal tax treatment based on their holdings of real estate investments

[6] Burton Zwick, "The Market for Corporate Bonds", *Quarterly Review* (Autumn 1977), pages 27-36

[7] Christopher McCurdy, "The Dealer Market for United States Government Securities", *Quarterly Review* (Winter 1977-78), pages 35-47

months. The other farm agencies offer bonds which are their joint obligations on a monthly basis. In terms of original maturity, agency issues tend to be concentrated in the intermediate range of between one and ten years. At midyear 1977, two thirds of the agencies' outstanding market debt had been issued with an original maturity of from one to ten years. The remaining third was virtually evenly divided between issues with original maturities of one year or less and those with maturities of more than ten years. There are, however, considerable differences among the maturities issued by different agencies. The BCs and FICBs borrow mainly at the short end of the spectrum, with most of their issues having original maturities of six and nine months. The FLBs, FNMA, and the FHLBs tend to borrow longer, however, with 50 percent or more of their

Table 3

Ownership of Agency Market Securities by Holder

In percentage of total and in billions of dollars

Holder	Year-end 1961	Year-end 1966	Year-end 1971	Year-end 1976	Year-end 1977
					In percentage of total
United States Government accounts and Federal Reserve Banks	0.4	7.0	5.3	9.1	9.9
Commercial banks	19.5	15.6	21.5	20.7	19.5
Mutual savings banks	6.0	4.8	5.1	4.0	3.8
Savings and loan associations	3.6	2.2	5.9	4.2	4.8
Life insurance companies	1.2	0.7	0.4	0.9	1.0
Fire, casualty, and marine insurance companies	2.4	2.1	1.3	1.5	1.6
Nonfinancial corporations	11.3	3.7	1.4	2.1	1.5
State and local governments	4.8	7.2	7.1	6.6	7.3
General funds	*2.8*	*5.6*	*4.9*	*3.9*	*4.3*
Pension and retirement funds	*2.0*	*1.5*	*2.2*	*2.6*	*3.0*
All other investors	50.8	56.7	52.1	50.9	50.7
Total	100.0	100.0	100.0	100.0	100.0
					In billions of dollars
United States Government accounts and Federal Reserve Banks	—	1.4	2.7	8.7	9.9
Commercial banks	1.7	3.0	10.9	19.7	19.5
Mutual savings banks	0.5	0.9	2.6	3.8	3.8
Savings and loan associations	0.3	0.4	3.0	4.0	4.8
Life insurance companies	0.1	0.1	0.2	0.9	1.0
Fire, casualty, and marine insurance companies	0.2	0.4	0.7	1.4	1.6
Nonfinancial corporations	1.0	0.7	0.7	2.0	1.5
State and local governments	0.4	1.4	3.6	6.2	7.3
General funds	*0.2*	*1.1*	*2.5*	*3.7*	*4.3*
Pension and retirement funds	*0.2*	*0.3*	*1.1*	*2.5*	*3.0*
All other investors	4.4	10.9	26.4	48.4	50.7
Total	8.6	19.2	50.7	95.0	100.1

Data for 1966 do not include ownership of EXIM issues or FNMA participation certificates. Data for 1976 and 1977 exclude ownership of GSA and WMATA issues, which were first sold in 1972, and some recently reclassified EXIM participation certificates.

Source: United States *Treasury Bulletin*.

recent new issues having original maturities of four years or more.

Trading activity in agency securities

The volume of trading activity in agency securities has grown considerably over the years, indicating a broadening market in which investors can conduct transactions easily and efficiently Since 1962 the reported volume of trading activity increased more than tenfold from less than $0.1 billion per day in that year to about $1 billion per day in 1977. (These data reflect information provided by Government securities dealers who report to the Federal Reserve Bank of New York. Currently, there are thirty-seven reporters) The data suggest that there was an increase in trading activity per dollar of outstanding debt as well as an increase in activity reflecting the expanded supply of agency issues.

Particularly notable was the increase in trading activity in the intermediate range of agency market debt, *i.e.*, securities with maturities of more than one through ten years. Average daily volume for this category increased twentyfold, considerably more than would be accounted for by the increase in outstanding debt of this maturity.

In 1966 the Congress authorized the Federal Reserve System to deal in agency securities as well as in Treasury obligations. Until 1971, the System restricted itself to repurchase agreements (RPs) rather than to outright operations in agency securities, as the agency market was not considered to have developed to a point where the System could conduct outright operations of a meaningful size without distorting or dominating the market Under these RPs, which it initiates to meet short-term needs for additional bank reserves, the System temporarily purchases securities from Government securities dealers, with the stipulation that the dealers will repurchase them within a specified number of days Being able to use agency issues for obtaining these short-term funds aided the dealers in financing inventories and contributed to their willingness to make markets in agency obligations.

By 1971 the agency market had developed to the point where the System was able to begin to make outright transactions, and the first purchases were made in September of that year. The Federal Open Market Committee (FOMC) established certain criteria for open market operations in these securities. These guidelines were designed to limit the System's impact on the agency market by setting ceilings on the share of any one issue that the System could hold and establishing a minimum size for issues that the System could purchase. Over the next few years the System expanded the use of agency securities in open market operations, though in the last three years the growth of its holdings has slowed. Starting in February 1977, System transactions were restricted to those agencies that cannot borrow from the FFB.[8] Thus, open market operations are now limited to sponsored agency securities.

Relationship between the agency market and other financial markets

Although all financial markets are interrelated, the agency market bears a particularly close relationship to the market for United States Treasury coupon securities and the market for prime corporate bonds. This is because the three types of securities have important similarities—they are all taxable, fixed-income securities with a high degree of safety. The yields on these three types of securities, however, typically differ from each other. Agency securities are considered somewhat less attractive than Treasury issues and generally trade at yields which are higher than those on Treasury issues of similar maturity In contrast, agency issues are more attractive than corporate utility bonds which form the bulk of outstanding Aaa corporate securities in the intermediate maturity range. Consequently, agency issues usually offer lower yields than comparable top-rated corporate utility issues

Chart 2 displays the yields on medium-term issues of agencies, the United States Government, and prime corporate utilities for the period since 1970. Clearly all three yields move very closely together. This reflects the process of arbitrage. If, for example, the positive yield spread between agency and Government debt widens, investors would buy more agency securities, pushing their prices up and yields down, and sell Government issues, pushing their prices down and yields up. This process would bring the spread back to normal limits.

What are the "normal" spreads among these three securities? As the chart shows, the yield spread among these three highly substitutable investments varies considerably. In the period since 1970 the spread between agency and Treasury securities of similar maturity has generally ranged between 15 and 65 basis points (100 basis points = 1 percentage point) The variation in the spread between agency and corporate utility obligations was still greater. (Top-rated corporate industrial issues have been relatively scarce particularly since 1974, and investors have regarded them as more attractive than agency issues although market participants do not appear to consider them safer than agency obligations)

[8] The current FOMC guidelines can be found in Appendix A

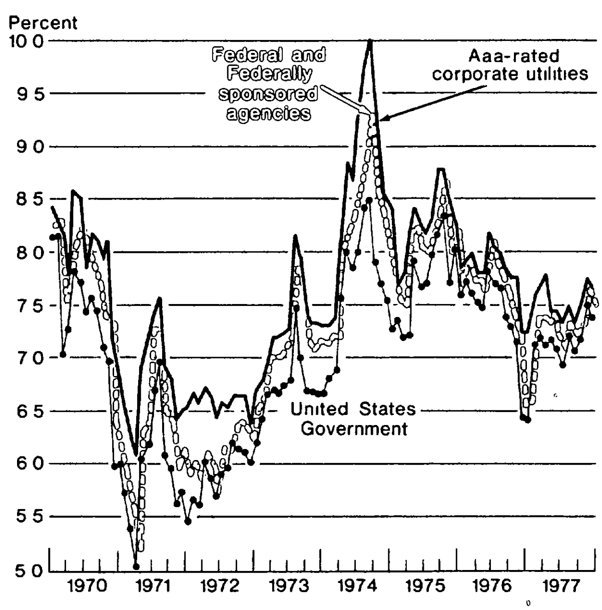
What causes the differentials among yields to vary? Some variation in spread can occur because it is profitable to arbitrage only if the difference from the "normal" spread is greater than the cost of arbitrage transactions. In addition, statistical analysis of the spread between agency and Treasury securities suggests that about one half the variation in the spread can be explained by the relative supplies of agency and Treasury obligations, the overall conditions in the money market, and the public's degree of familiarity with agency debt. Spreads have tended to narrow, as the public has become more familiar with agency debt. They have tended to widen, however, when the supply of agency issues is large relative to Treasury debt, because more people must be induced to hold agency issues in place of Treasury securities. Spreads also tend to widen when money market conditions are tight, since investors apparently value liquidity more highly at such times.

These factors help explain the historical pattern of yield spreads between agency issues and Treasury issues. Over the last half of the sixties the spread widened considerably as agencies greatly expanded their supply of new issues and interest rates were generally high (Chart 3). Then, with the easing of money market conditions over the next few years, the spreads between the yields on agency and Treasury debt narrowed. This pattern was sharply reversed in 1974, when money market conditions again tightened and agencies were heavy borrowers. In 1975 and 1976, agency demand for funds moderated while the Treasury sharply increased its borrowing. As a consequence of this development and the easing of money market conditions, the spreads declined in 1975 and 1976. They essentially stabilized in 1977 in the wake of a moderation in Government borrowing.

By far the most dramatic change in yield spreads since 1965 occurred at the long end of the maturity spectrum where the spread on fifteen-year issues increased from 40 to almost 110 basis points. This reflected "technical" factors as well as some actual widening in spreads. The major factor was that prior

Chart 2

Yields on Medium-term Bonds



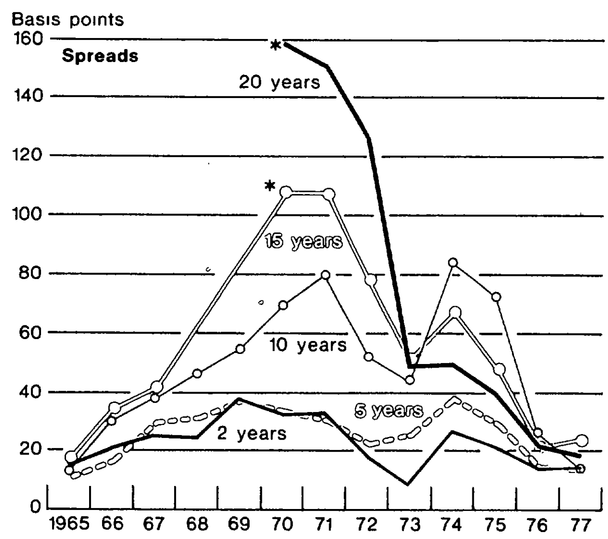
Series are for five-year maturities, 1970-72, and for seven-year maturities thereafter

Sources: Salomon Brothers, An Analytical Record of Yields and Yield Spreads, and computations by the author to create the Aaa-rated corporate series prior to 1976

Chart 3

Yield Spreads by Term to Maturity between Federal and Federally Sponsored Agency and Federal Government Obligations

Annual averages



* Data for 1970 available for only the final three months

Source: Salomon Brothers, An Analytical Record of Yields and Yield Spreads to 1971 there was a 4¼ percent interest rate ceiling on all Treasury bonds. Because long-term market rates had climbed higher than this, after 1965 no new Government obligations of longer than seven years' maturity had been issued. As a result, the only long-term Government securities outstanding were old issues which carried very low interest rates and traded at deep discounts in the market. Because of certain tax advantages, the yield on such bonds is usually lower than on bonds selling close to par.[9] Beginning in 1971, however, the Congress granted the Treasury authority to issue limited amounts of long-term debt free from the 4¼ percent interest rate ceiling. Consequently, as increasing amounts of long-term securities were issued under this new authority at the prevailing higher market rates, spreads between long-term agency and Government yields narrowed.

Some outstanding issues

While the activities of the farm agencies have been relatively noncontroversial, those of the housing agencies have generated considerable discussion. One issue that has arisen from time to time is how much of an effect the housing agencies actually have on the amount of home construction. While at first glance it would appear that the provision of credit to the housing sector ought to have a significant impact on residential construction, in reality the extent is much less clear.[10] Very simply stated, market participants may substitute one type of debt for another and offset the initial flow into the desired sector. For example, savings banks may sell some mortgage holdings to FNMA but invest the funds in corporate bonds instead of new mortgages. Alternatively, some institutions that purchase FNMA securities may have sold mortgages to do so Thus, it is not clear how much the activities of FNMA and the FHLBs in fact increase the volume of mortgages and push mortgage rates down. Moreover, even if the activities of the agencies serving housing do increase the net supply of mortgage money, there is a question whether borrowers will actually use mortgage funds for the purchase of new homes rather than finance various other activities or build up their holdings of other financial assets.

What have the data shown about the relationship between the provision of credit by agencies and home building? Some economists have found that the FHLBs through their advances and FNMA through its mortgage purchases do tend to have a positive short-run effect on housing activity lasting up to two and a half years.[11] However, over the long run, the studies have not found that the activities of these agencies have a significant positive impact.

Over the years there has been considerable concern about the great variability in the level of residential construction activity. The cycles in home building reflect several factors: families' choices about when to purchase new homes, the availability of mortgage funds at thrift institutions, and the activities of the agencies that can augment the supply of mortgage money by lending to the thrift institutions or buying mortgages from primary mortgage lenders. The pattern of home building generally follows the pattern of overall economic activity except that, when economic activity is very high, housing starts as a rule begin to drop off. In part, this reflects the preferences of households. They prefer to buy homes when mortgage money is available at lower rates of interest than usually prevail when the economy is running strong. Perhaps a more important factor is the shifting of funds out of depository institutions into marketable securities when interest rates on deposits are no longer competitive. At such times, thrift institutions are less able to make new mortgage loans.

The housing agencies act to moderate the effects of the decline in deposit flows. When thrift institutions need funds, they can borrow from the FHLBs or sell mortgages to FNMA as a means of meeting mortgage commitments until the deposit inflows strengthen. Thus, the housing agencies assist the home building industry mainly when interest rates are above the ceilings by enabling thrift institutions to recapture some of the funds being lost to marketable securities. Typically, at such a time the economy is operating close to a peak of capacity utilization. Superficially, this might suggest that the activities of the agencies, by bolstering housing in boom periods, accentuate the economy's ups and downs However, if housing is aided through the agencies' bidding funds away from other sectors, the latter may reduce their spending and the net effect of the agencies on total economic activity may, therefore,

[9] Deep discount bonds offer capital gains which receive more favorable tax treatment than does interest income
Another technical factor in the widening of the spreads was that so-called "flower bonds" were not separated from other long-term Government obligations until 1973 and affected the yield series These issues have a lower yield because their par value can be used for the payment of estate taxes even though market value is well below par

[10] This issue is also discussed in Zwick, "The Market for Corporate Bonds", *loc cit*

[11] Some of these studies are Eugene Brady, "An Econometric Analysis of the U S Residential Housing Market", and Ray Fair, "Monthly Housing Starts", *National Housing Models*, ed by R Bruce Ricks (Lexington, Mass D C Heath and Company, 1973), James Duesenberry and Barry Bosworth, "Policy Implications of a Flow of Funds Model", *Journal of Finance* 29 (May 1974), and Dwight Jaffee, "An Econometric Model of the Mortgage Market", *Savings Deposits, Mortgages, and Housing*, ed by Edward Gramlich and Dwight Jaffee, (Lexington, Mass D C Heath and Company 1972)

be small. To date, there is no widespread agreement as to the cyclical impact of agency activity on the economy as a whole.

One striking feature of high interest rate periods is that investors buying Federally sponsored agency securities receive higher rates for financing housing activity than the depositors of the thrift institutions themselves. In general, it is primarily the small investor who remains a savings and loan depositor and receives the lower yield. The problem, however, would not seem to be the availability of agency securities, as some critics of the agencies have implied, but rather the structure of the interest rate ceilings. The thrift institutions have been allowed greater flexibility in the rates they pay for various maturities in recent years, alleviating but not ending the problem.

Of late, there has been much discussion of FNMA's activities. Most observers agree that FNMA has contributed to the liquidity of mortgages by being willing to buy mortgages from mortgage originators, such as mortgage bankers and thrift institutions. Until 1970 FNMA's purchases were by law limited to insured or guaranteed mortgages, but thereafter FNMA was also authorized to buy conventional mortgages and since then has added to the liquidity of this type of mortgage as well. FNMA views its growth and profitability as being in accord with its mandate to provide liquidity in the secondary mortgage market and to earn a reasonable return for its owners.

Some critics, on the other hand, have argued that FNMA has not adequately fulfilled its obligation to create a secondary market, because it continually purchases but rarely sells mortgages. Others believe that Federal sponsorship carries with it an obligation for FNMA to participate more fully in the implementation of Government housing objectives Specifically, HUD would like FNMA to purchase set proportions of its mortgages in inner city areas, but FNMA considers this proposal too restrictive. Concern over some of these issues has recently led the Senate Committee on Banking, Housing, and Urban Affairs to undertake a review of FNMA's policies and activities.

Recent trends and future evolution of the market

Since the end of 1974 the growth of publicly held agency debt has slowed down markedly. While agency debt almost doubled between 1971 and 1974, the increase was only 11 percent between 1974 and 1977 The recent slowing resulted from several factors To begin with, the Federal agencies have been borrowing through the FFB, which in turn borrows through the Treasury. As a result, when Federal agency debt matures and is replaced by obligations to the FFB, outstanding Federal agency market debt is reduced. (Table 4 shows the growth of the securities holdings of the FFB since its inception, with a breakdown for the five largest agency issuers.) In addition, the Federally sponsored housing agencies have not been growing as fast as they did in the early seventies. The FHLBs reduced their debt by about $3½ billion between 1974 and 1977, as savings and loan associations repaid their loans to the FHLBs over most of this period. The repayment of advances reflected the large inflows to the thrift institutions, coupled with weak demand for mortgages during the early part of that period. Since the last half of 1977, however, advances have increased in response to greatly reduced thrift inflows and substantial outstanding mortgage commitments. During the 1974-77 interval, FNMA's borrowing slowed substantially from the rapid pace of the previous ten years This probably reflects some of the same factors that influenced the FHLBs In addition, FNMA's growth may have slowed in response to its critics and also because the secondary mortgage market is now fairly well developed

Table 4

Federal Financing Bank (FFB) Holdings of Securities*

In billions of dollars, as of December 31

Issuers†	1974	1975	1976	1977
Five largest				
FmHA	2 5	7.0	10.8	16 1
EXIM	—	4 6	5 2	5.8
TVA	0 9	1 8	3 1	4.2
REA‡	—	0 6	1 4	2 6
PS	0 5	1 5	2 7	2 2
Others	0 6	1.7	5 5	7 6
Total	4 5	17 2	28 7	38 6

* With the development of the FFB, the public debt of the Federal agencies is limited to the amounts issued prior to the creation of the FFB and is reduced as these outstanding issues mature The FFB, created by Congressional act in December 1973, has financed its operations, with the exception of one offering, solely through borrowing from the United States Treasury.

† See box on page 8 for explanation of acronyms of agencies Because of rounding, components may not add to totals

‡ Rural Electrification Administration is part of the Department of Agriculture and has never borrowed in the agency market

Sources *Federal Reserve Bulletin* and telephone conversations with the Federal Financing Bank.

What is the likely pattern of agency growth in the future? Among the Federal agencies, based on Federal budget projections, it is anticipated that the activities of the Farmers Home Administration, the Tennessee Valley Authority, and the Export-Import Bank will continue to expand and so will their total borrowing needs. However, since their borrowing is from the FFB, which borrows through the Treasury, this will not have an impact on agency debt outstanding. Of course, this increased Federal agency borrowing will affect the overall capital market, since the Treasury must borrow beyond its deficit to provide funds to the FFB. Turning to the sponsored agencies, the main factors influencing the housing agencies are time and savings account inflows and residential mortgage demand. Since the rate of inflow to time and savings accounts has slowed considerably at the same time that mortgage demand appears to be running very strong, some near-term growth of FHLB borrowing to make advances to the savings and loan associations appears likely. The main consideration for the future of the FHLBs is whether the increased issuance of longer maturity time deposits at thrift institutions will tend to stabilize deposits there and to lessen the need for borrowing from the FHLBs on the scale that occurred in the past. In light of current discussions, the future development of FNMA seems unclear. If, for example, it became a net seller at times, the pattern of its future borrowing might well resemble that of the FHLBs.

Lois Banks

Appendix A: Guidelines for the Conduct of System Operations in Federal Agency Issues

Board of Governors of the Federal Reserve System press release dated February 22, 1977

(1) System open market operations in Federal agency issues are an integral part of total System open market operations designed to influence bank reserves, money market conditions, and monetary aggregates.

(2) System open market operations in Federal agency issues are not designed to support individual sectors of the market or to channel funds into issues of particular agencies.

(3) System holdings of agency issues shall be modest relative to holdings of United States Government securities, and the amount and timing of System transactions in agency issues shall be determined with due regard for the desirability of avoiding undue market effects.

(4) Purchases will be limited to fully taxable issues, not eligible for purchase by the Federal Financing Bank, for which there is an active secondary market. Purchases will also be limited to issues outstanding in amounts of $300 million or over, in cases where the obligations have a maturity of five years or less at the time of issuance, and to issues outstanding in amounts of $200 million or over in cases where the securities have a maturity of more than five years at the time of issuance.

(5) System holdings of any one issue at any one time will not exceed 30 percent of the amount of the issue outstanding. Aggregate holdings of the issues of any one agency will not exceed 15 percent of the amount of outstanding issues of that agency.

(6) All outright purchases, sales, and holdings of agency issues will be for the System Open Market Account.

Appendix B: Federally Sponsored and Federal Agencies

Federally sponsored agencies—farm

The oldest of the sponsored agencies are the twelve *Federal Land Banks* which were created in 1917 pursuant to the Federal Farm Loan Act of 1916. (The twelve districts of the three sponsored farm agencies coincide with each other, but they differ from the twelve Federal Reserve Districts.) While most of the original stock was Government owned, there has been no Government capital in the banks since 1947. Since that date the banks have been completely owned by the Federal Land Bank associations, which in turn are owned by farmers and ranchers who belong to the associations. The FLBs are authorized to make mortgage loans in rural areas with maturities of from five to forty years. The loans are extended for such purposes as the purchase of homes, real estate, equipment, and livestock and for the refinancing of existing debt. To finance their lending activity, the FLBs issue consolidated bonds which are the joint obligations of all twelve banks There was $19.1 billion in these bonds outstanding at the end of 1977

The twelve *Federal Intermediate Credit Banks* were established under the Agricultural Credits Act of 1923. The Federal Government capital in the FICBs was retired in 1968, and the banks are now entirely owned by some 430 local production credit associations. The associations are composed of borrowers assisted by the FICBs, who must use a specified percentage of their loans to purchase stock in the lending association. The FICBs' function is the provision of short- and intermediate-term credit to farmers, ranchers, rural homeowners, farm-related businesses, and commercial fishermen primarily for their marketing needs. The FICBs do not themselves make loans to individuals but, rather, lend to and discount paper for the production credit associations and other financial institutions such as commercial banks which provide direct financing to agricultural producers. The twelve FICBs issue consolidated bonds, and there was $11.2 billion in outstanding FICB debt at the end of December 1977.

The third group of sponsored agencies serving the agricultural community, the *Banks for Cooperatives*, is composed of a central bank and twelve regional banks. The BCs came into being pursuant to the Farm Credit Act of 1933 shortly after the creation of the Farm Credit Administration which supervises the three sponsored farm agencies. Government capital was retired in 1968, and the banks are now entirely owned by borrowing cooperatives. The BCs lend funds to agricultural and fishing cooperatives which provide various kinds of services, such as marketing and processing, to their members. The principal function of the Central Bank for Cooperatives is to participate in large loans originated by the banks which exceed the legal lending capacity limits of the individual banks. To finance their activity the thirteen banks jointly issue consolidated bonds usually of six-month maturity, though on occasion an issue of more than one year is offered as well. BC market debt outstanding at year-end 1977 totaled $4.4 billion.

In addition to the separate obligations of the FLBs, FICBs, and BCs, in 1975 the three agencies began to sell short-term discount notes which are the joint obligations of all thirty-seven banks. These systemwide offerings are called Federal Farm Credit Bank notes. In the summer of 1977 the three agencies jointly sold the first longer term Federal Farm Credit Bank bonds, two issues with maturities of five and twelve years. At the end of 1977, the sponsored farm agencies had a total outstanding debt of $37.3 billion.

Federally sponsored agencies—housing

Among the sponsored agencies serving the housing sector the twelve *Federal Home Loan Banks* are the oldest and date back to 1932, a time when many home-financing institutions were in difficulty. All Government capital was retired by 1951, and the banks have been privately owned by member savings institutions since then. They remain subject to the policies and supervision of the Federal Home Loan Bank Board, an agency in the executive branch of the Federal Government. The primary function of the banks is to provide loans for member savings and loan associations which are mainly engaged in residential mortgage financing. To provide credit to their members, the FHLBs jointly issue medium- and long-term consolidated obligations of various maturities. FHLB long- and medium-term debt outstanding totaled $17.0 billion at year-end 1977. In addition, to meet short-term needs the banks initiated a program of discount note sales in 1974, but only a relatively small amount of these short-term issues is outstanding at any given time.

The *Federal Home Loan Mortgage Corporation* was created as a subsidiary of the Federal Home Loan Bank Board in 1970, pursuant to one portion of the Emergency Home Finance Act of that year. It is authorized to maintain a secondary market in residential mortgages including multifamily dwellings and was created to be particularly attuned to the needs of the thrift and other depository institutions. The bulk of its activity is in conventional mortgages, and only a small amount is in mortgages insured by the Federal Housing Administration (FHA) or guaranteed by the Veterans Administration (VA). In the eight years of its existence, FHLMC has tapped the credit markets in several ways, two of which are not generally considered part of the market for agency securities. These are its direct placement of issues with state and local governments and its continuous sale of certificates of participation in groups of mortgages which "pass through" principal and interest at monthly intervals. Included in the agency market, however, are two other types of mortgage-backed securities which have the characteristics of bonds. These are securities issued by FHLMC and guaranteed by GNMA and, a more recent innovation, FHLMC-guaranteed mortgage certificates. On December 31, 1977, $1.7 billion of these last two groups of securities was outstanding, the smallest total for any of the sponsored agencies.

The *Federal National Mortgage Association,* the third of the Federally sponsored housing agencies, originated in 1938. FNMA was rechartered in 1954 to distinguish between its public and essentially private functions and was divided into two separate corporations in 1968. These two entities are the privately owned FNMA, from which Government funds were retired in 1968, and the Federally owned Government National Mortgage Association.

FNMA was initially established to provide a secondary market for FHA-insured mortgages and ten years later, in 1948, was also authorized to purchase and to sell VA-guaranteed mortgages. FNMA's activities were restricted to insured and guaranteed mortgages until the Emergency Home Finance Act of 1970 empowered it to deal in conventional mortgages as well. However, most of its portfolio is still composed of insured and guaranteed mortgages. FNMA is by far the largest of the sponsored agency borrowers with outstanding debt of over $31 billion at the close of last December. In addition, FNMA had bonds totaling about $550 million directly placed with state and local governments. The bulk of FNMA's outstanding debt was in the form of medium- and long-term debentures though it also owed close to $2 billion in short-term discount notes. Included in FNMA's outstanding debt is a small amount of GNMA-guaranteed mortgage-backed bonds which FNMA issued several years ago.

Federal agencies

Since the Federal Financing Bank began operations in mid-1974, none of the Federal agencies have issued new securities in the agency market. Instead, they have sold their securities to the FFB with the exception of GNMA which borrows directly from the Treasury. The market debt of the Federal agencies is restricted to issues sold prior to 1974.

As of year-end 1977 the largest amount of debt still outstanding among the partially or wholly owned Federal agencies was the $3.9 billion of *Farmers Home Administration* insured notes. This agency in the Department of Agriculture extends loans in rural areas for farms, homes, various types of community facilities, and the establishment of rural business and industry. Its loans to individuals are primarily to those who cannot obtain needed credit on suitable terms elsewhere. The FmHA sold insured notes to the public representing participations in its loans For accounting purposes, these notes are treated in the Federal budget as a sale of assets rather than a debt liability of FmHA. They are, however, marketable securities which are insured by an agency in the Federal Government.

The $3.7 billion of *Government National Mortgage Association* participation certificates was the second largest volume of Federal agency debt outstanding on December 31, 1977. These mortgage-backed certificates were sold prior to the 1968 division of FNMA and were assumed by GNMA after its formation. GNMA, an agency in the Department of Housing and Urban Development, assists in financing residential mortgages originated under subsidized Federal housing programs established by the Congress or the President. The funding of GNMA's activities other than by participation certificates is primarily through borrowing from the Treasury and sales of some mortgages. As of mid-1977, its debt to the Treasury totaled $5.1 billion.

The *Export-Import Bank* is a wholly Government-owned corporation which assists in the financing of United States exports through either direct loans to foreign importers or the issuance of guarantees and insurance. In existence since 1934, the bank has some $2 7 billion of outstanding debt in the agency market.

The *Tennessee Valley Authority* is another wholly Government-owned corporation with a sizable volume of bonds outstanding with the public. TVA participates in the economic development of the Tennessee Valley and its activities include electric power production, flood control, forestry, and wildlife development. TVA's power program is financially self-supporting or funded from the sale of securities, while most of its other activities receive Congressional appropriations. At year-end 1977, $1.8 billion of TVA bonds was outstanding in the agency market.

Each of the *remaining Federal agencies* in the agency market has less than $1 billion in public debt outstanding These are the General Services Administration and the United States Postal Service, which are both agencies in the executive branch of the Government.

GSA, which manages the Government's property and records, has outstanding debt consisting of certificates of participation in Government building projects which were sold to the public in 1972-73. Under the Postal Reorganization Act of 1971, the PS was granted the power to issue debt obligations to finance capital expenditures and current operations. It sold one issue to the public in 1972 but did not borrow in the market after that.

Washington Metropolitan Area Transit Authority

WMATA was established in 1967 under the joint auspices of Maryland, Virginia, and the District of Columbia. It was created to develop and operate mass transit facilities in the Washington metropolitan area. Construction of the facilities is financed through Federal and local government contributions and from the issuance of Federally guaranteed bonds. WMATA sold bonds to the public in 1972-74 but, like most of the Federal agencies, has borrowed from the FFB since then.